PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.

1889.

JANUARY 1, 1889.

The President, Dr. JOSEPH LEIDY, in the chair.

Seventeen persons present.

On several Gregarines, and a singular mode of conjugation of one of them.—PROF. LEIDY communicated the following on some species of *Gregarina:* Among coleopterous insects the family of Tenebrionidae appears to be constantly infested with gregarine parasites. A remarkable species observed in one of our common beetles, *Nyctobates pennsylvanicus*, I propose to distinguish by the name of GREGARINA PHILICA. The body is elongated clavate, variably thickened and rounded in front, somewhat tapering behind, and with the posterior end conical. Cephalic division campanulate, with the summit somewhat prolonged and surmounted by a horizontal circular disk with a rounded, milled border. Conjugating individuals with the cephalic extremity conical and simple, or without the terminal disk. Length from 0·3 to 2 mm.; breadth 0·6 to 0·15 mm.

In conjugation the species is remarkable and so far as I know peculiar. In the pairing of most described species of *Gregarina*, two individuals, commonly of the same size, conjoin in the same line, the cephalic extremity of one attached to the caudal end of the other.

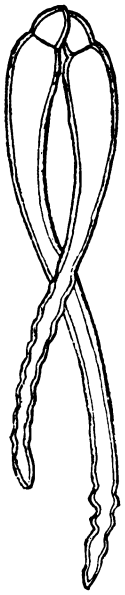


FIG. 1.
Gregarina philica.
40 diam.

In the species under consideration I have observed that the pairs conjoin, as represented in the accompanying figure, with the heads together and the bodies side by side. In numerous instances the position was invariable, and in all, the couples variably differed in size. Thus in one pair the longer individual was 1·75 mm. long and the smaller one 0·75 mm. long, and in another pair the larger individual was 2 mm. long and the other 1·75 mm.

The species is pretty constantly found in the proventriculus of *Nyctobates pennsylvanicus*.

Another interesting Gregarina is frequent in a common myriapod of our forests, the *Scolopocryptops sexspinosus*. It resembles the forms described by Kölliker as *G. Sieboldii* and by Siebold as *G. oligacantha*, referred by Stein to *Stylorhynchus*, and by Schneider to *Hoplorhynchus*. These are common in Europe in the larva of a dragon-fly, *Callopteryx virgo*. The species under consideration I propose to name GREGARINA ACTINOTUS. The body is elongated conical, thickest and rounded in advance and acute behind. The cephalic division is depressed spheroid and broader than long, and is surmounted by a long vase-like rostrum expanding at the top in a horizontal wheel-like disk divided at the border into short digitiform rays. Length from .0·06 to 0·52 mm.; breadth to 0·08 mm.; rostrum 0·08 to 0·1 mm. long.

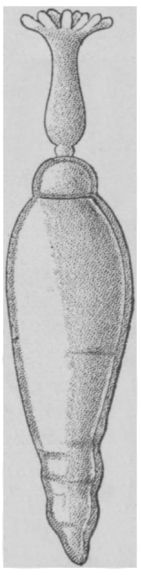


FIG. 2.
Gregarina actinotus.
175 diam.

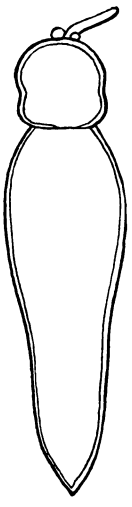


FIG. 3.
Gregarina megacephala. 80 diam.

The accompanying figure represents the parasite. It is commonly found in considerable numbers, adherent by the rostrum to the inner surface of the proventriculus, looking like minute Echinorhynchi.

After finding the curious Gregarine of *Scolopocryptops*, one morning subsequently I found a fine *Cermatia forceps* in my bed room. In it was another species which may be named *Gregarina megacephala*. The body is elongated ovate and acute or short clavate and obtuse with an unusually large ovoid and often constricted head, surmounted by a small rounded or elongated appendage. Length 0·42 to 0·75 mm. to 0·24 broad; head about one-fourth the length of the body. It approximates *Dufouria agilis* of Schneider, found in the larva of a Hydracantharis.

In some little green beetles, *Hoplocephala bicornis*, one of the Tenebrion-

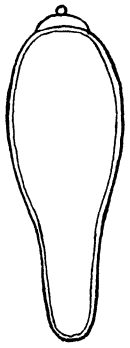
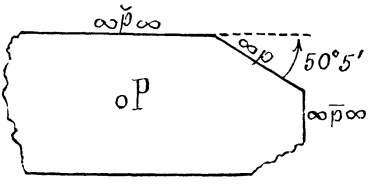


FIG. 4. Gregarina microcephala. 125 diam.

idae, I found a number of Gregarines remarkable for the small size of the head and hence the species may be named *Gregarina microcephala.* The body is clavate; the head like a watch crystal with a little ball at the summit. Length 0·35 mm. by 0·1 wide; head 0·012 long by 0·04 wide.

It bears a close resemblance to *Echinocephalus hispidus* of Schneider, found in *Lithobius forcipatus*, but in the one described I at no time found digitiform appendages to the head.

On Anhydrite.—A remarkable occurrence of *Anhydrite* was brought to the attention of the Academy by PROF. GEORGE A. KOENIG. The specimen was found by Mr. Frank Keeley, among the ballast of the Baltimore and Ohio Railroad track south of the tunnel at Darby, Del. Co., Pa. Upon a rock of granular structure, which was determined to be *Diabase*, the anhydrite formed a patch about one inch long, one-half inch wide and one-eighth inch thick. It is of a fine pinkish purple color and pearly lustre. The structure is composite, being an aggregate of prismatic individuals showing an obtuse angle. On closer examination it is found that this angle does not belong to a prism in a crystallographic sense. It is made by two cleavage planes of unequal cleavability, intersecting at about 130°. In the adjoining figure the fragment which was measured is projected on the basal plane (oP). The cleavage along $\infty\breve{P}\infty$ is less than along $\infty\bar{P}\infty$ (which reflected a perfect image). The cleavage along oP is good. The cleavage along ∞P is not mentioned in Dana's Handbook.



Specific gravity = 2·949 (0·g938 substance). B. B. fuses at thin edge to a grayish white enamel, coloring the flame orange. Strong hepar reaction, no color with fluxes. At red heat the color is destroyed. No water in the closed tube. Dissolves in strong HCL.

Analysis gave:

A. Substance 0·207 gr. Ignition 0·0018; $BaSo^4$ = 0·3355; CaO = 0·838.

B. Substance 0·6463 gr. 0·0025 insoluble; $BaSo^4$ =1·0485; CaO = 0·2575.

	A	B
Ignition =	0·90	0·90.
Insoluble =	0·40	0·40.
SO^3 =	55·80	55·78.
CaO =	40·49	39·84.
	97·59	96·92.

The filtrate from B, after CaC^2O^4 had been removed, was evaporated, and residuum ignited. It yielded a sodium reaction, but not sufficient to account for the lack of three per cent in the analyses.

Iron was found in very small quantity.

The pigment appears to be a carbon compound.

Pyrite is visible in several places surrounding the anhydrite.

A thin section of the rock showed essentially an emerald green mineral (black when thick) which polarized very weakly and showed little dichroism. With it a white, very transparent mineral, which polarizes like a plagioclase. Besides these only small grains of a bluish purple mineral could be seen. It was possible to separate, by Mercuric iodide, the white mineral in a pure state.

Its analysis, made with 0·20 gr. gave

CaO	= 0·0228	(*diff.*) SiO^2	= 55·88
Al^2O^3	= 0·0568 (*white*)	Al^2O	= 28·40
Na^2SO^4	= 0·0210	CaO	= 11·14
		Na^2O	= 4·58.
			100·00

The plagioclase is therefore *Labradorite.*

The green mineral could not be freed either from the plagioclase nor from the dark brown grains. The analysis gave

(*diff.*) SiO^2	= 47·45	SiO^2	= 10·92	Labradorite
Al^2O^3	= 7·40	Al^2O^3	= 5·55	
FeO	= 12·08	CaO	= 2·15	
CaO	= 21·95	Na^2O	= 0·92	
MgO	= 9·75			
Na^2O	= 0·92	SiO^2	= 36·53	Pyroxene
Ignition	= 0·47	Al^2O^3	= 1·85	
	100·00	FeO	= 12·08	
		CaO	= 19·78	
		MgO	= 9.75	
		Ignition	= 0·47	

That the green mineral must be taken as a Pyroxene follows from its optical behavior and also from the fact that the splinters show under the microscope a nearly rectangular cleavage. The nature of the roundish brown grains could not be ascertained.

We have here the existence of anhydrite as a secondary crystallization on an undoubtedly intrusive rock. It's elements are to be found in the calcium of Labradorite and Pyroxene, and the sulphur of the Pyrite. But one should expect to see Selenite crystallizing under these conditions. Some years ago (Proc. Acad. 1873,) the author showed how anhydrite falls from a solution of calcium sulphate at 150°C. in a sealed tube, but selenite at the boiling point at atmospheric pressure. The existence of high pressure with or without heat would account therefore for the anhydrite on Diabase. The author is not aware that this mineral has heretofore been found among the epigenetic products of crystalline intrusive rocks.